

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



04 FEB 2005



(43) International Publication Date
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number
WO 2004/015067 A2

(51) International Patent Classification?: C12N

(21) International Application Number:
PCT/US2003/024432

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/401,863 7 August 2002 (07.08.2002) US

(71) Applicant (for all designated States except US): CHILDREN'S MEDICAL CENTER CORPORATION [US/US]; 300 Longwood Avenue, Boston, MA 02115 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MORAN, Magdalene, M. [US/US]; 76 Harvard Avenue, Brookline, MA

02446 (US). CHONG, Jayhong, A. [US/US]; 258 Harvard Street #411, Brookline, MA 02446 (US). RAMSEY, Ian, Scott [US/US]; 266 Arborway #1, Jamaica Plain, MA 02130 (US). CLAPHAM, David, E. [US/US]; 3 Arwood Street, Wellesley, MA 02482 (US).

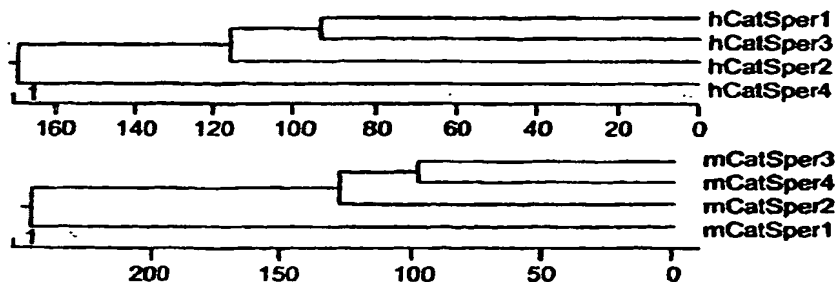
(74) Agents: TWOMEY, Michael, J. et al.; Hale and Dorr LLP, 60 State Street, Boston, MA 02109 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM).

[Continued on next page]

(54) Title: SPERM-SPECIFIC CATION CHANNEL, CATSPER-3, AND USES THEREFOR



hCatSper3 and hCatSper1 are 21% identical
hCatSper3 and hCatSper2 are 22% identical
hCatSper4 and hCatSper1 are 17% identical
hCatSper4 and hCatSper2 are 21% identical

mCatSper3 and mCatSper1 are 20% identical
mCatSper3 and mCatSper2 are 22% identical
mCatSper4 and mCatSper1 are 22% identical
mCatSper4 and mCatSper2 are 22% identical

hCatSper1 and mCatSper1 are 48% identical
hCatSper2 and mCatSper2 are 71% identical
hCatSper3 and mCatSper3 are 68% identical
hCatSper4 and mCatSper4 are 65% identical

(57) Abstract: Nucleic acid and protein sequences relating to a cation channel which is sperm-specific (CatSper3) are disclosed. The CatSper3 protein is shown to be specifically expressed in sperm. Nucleic acids, vectors, transformed cells, transgenic animals, polypeptides, and antibodies relating to the CatSper3 gene and protein are disclosed. Also provided are methods of in vitro fertilization and contraception, methods of identifying modulators of CatSper3 activity, methods of genotyping subjects with respect to CatSper3, and methods of diagnosing and treating CatSper3-mediated disorders, including infertility. Related business methods are also disclosed.

WO 2004/015067 A2